

# Comparing Structural Perspectives on Medical Informatics: EMBASE vs. MEDLINE

Theodore Allan Morris, PhD

## Abstract

Previous bibliometric analyses of Medical Informatics' internal structure used MEDLINE records as the unit of study. EMBASE, a product of Excerpta Medica, carries a wider international scope and offers complementary retrieval results to MEDLINE. Since much medical informatics critical thinking originated abroad and migrated to North America, this difference in coverage may also indicate a different perspective of "what constitutes medical informatics." Using traditional bibliometric and multivariate data analysis techniques, the present work examines EMBASE indexing records for the same 1995-1999 time frame as earlier MEDLINE studies to identify and compare structural features of the field..

**Problem Addressed:** Are perceptions of Medical Informatics structure difference when garnered from EMBASE vs. MEDLINE records? Previous bibliometric studies of Medical Informatics structure examined MEDLINE indexing.<sup>1,2</sup> EMBASE has been shown to offer retrieval results complementary to MEDLINE due in part to its broader international scope.<sup>3,4,5</sup> Further, many seminal developments in medical informatics critical thinking (including the very term "medical informatics") have migrated to North America from abroad, particularly from Europe.<sup>6</sup>

**Methodology:** Frequently co-occurring EMBASE Tree Structure Numbers (descriptor codes) and thesaurus terms

(descriptors) are retrieved from records added to the database 1995-1999. The co-occurrence data is converted to similarity (distance) values expressed as Pearson's  $r$  values, and presented to cluster, principal components, and multidimensional scaling analysis for assistance in interpretation.

**Results and Discussion:** Cluster structure, factor loadings, and underlying dimensions within the data are compared to previous MEDLINE-based results. Potential similarities and especially differences in the two "pictures" of Medical Informatics structure are presented.

## References

1. Morris, TA. Medical informatics as a market for IS/IT. In: Proceedings, American Medical Informatics Association Annual Symposium, San Antonio, TX, November 9-13, 2002. Philadelphia: Hanley & Belfus, 2002.
2. Morris, TA. Structural relationships within medical informatics. In: Proceedings, American Medical Informatics Association Annual Symposium, Los Angeles, CA, November 2000. Philadelphia: Hanley & Belfus, 2000.
3. Gehanno, J-F, Paris, C, Thirion, B, Calliard, J-F. Assessment of bibliographic databases performance in information retrieval for occupational and environmental toxicology. *Occup Environ Med.* 1998;55:562-6.
4. Suarez-Almazor, ME, Belseck, E, Homik, J, Dorgan, M, Ramos-Remus, C. Identifying clinical trials in the medical literature with electronic databases: MEDLINE alone is not enough. *Controlled Clin Trials.* 2000;21:476-87.
5. Woods, D, Trewheeler, K. Medline and Embase [sic] complement each other in literature searches. *BMJ.* 1998;316:1166.
6. Collen, MF. Origins of medical informatics. *Western J Med.* 1986;145:778-85.

Theodore Allan Morris, Ph.D., Kent State University, School of Library and Information Science, Columbus, OH 43210